

What is claimed is:

1 1. A digital image processing device comprising:
2 a signal processing unit to process a video input signal;
3 a frame memory to store a result from the processing
4 performed by said signal processing unit; and
5 a redundant pixel embedding circuit to embed a redundant
6 pixel not to be displayed in an image line read from said frame
7 memory and to produce a video output signal.

1 2. The digital image processing device according to Claim 1,
2 wherein said redundant pixel embedding circuit has a function of
3 receiving, as an input, an image line read from said frame memory
4 and of embedding, according to an embedding control signal fed
5 from outside, a redundant pixel in a specified position in said
6 image line.

1 3. A digital image processing device comprising:
2 a signal processing unit to process a video input signal;
3 a frame memory to store a result from the processing
4 performed by said signal processing unit;
5 a serial-parallel converting circuit to receive image data
6 read from said frame memory in a time-series manner and to produce
7 an output making up an image line,
8 a redundant pixel embedding circuit to embed a redundant
9 pixel not to be displayed in said image line and to output data,
10 and
11 a parallel-serial converting circuit to output said image

12 line in which said redundant pixel is embedded as time-series
13 image data.

1 4. The digital image processing device according to Claim 3,
2 wherein said serial-parallel converting circuit which is made up
3 of a register file being able to store an image line and which
4 has a function of sequentially storing image data fed from said
5 frame memory in a time-series manner according to a writing
6 control signal fed from outside and of reading, simultaneously
7 and in parallel, contents of all registers in said register file.

1 5. The digital image processing device according to Claim 3,
2 wherein said redundant pixel embedding circuit has a function of
3 receiving, as an input, said image line read from said
4 serial-parallel converting circuit and of embedding, according
5 to an embedding control signal fed from outside, a redundant pixel
6 in a specified position in said image line.

1 6. The digital image processing device according to Claim 3,
2 wherein said parallel-serial converting circuit has a register
3 file made up of two or more shift registers and a selector to select
4 an output from each of said shift registers and to output the
5 selected output and wherein said register file is able to store
6 an image line in one clock cycle and wherein each of said shift
7 registers is able to perform a shifting operation, according to
8 a reading control signal fed from outside, in synchronization with
9 a clock signal and wherein said selector has a function of
10 selecting a specified shift output from said shift register and
11 of outputting the selected output according to an embedding

12 control signal fed from outside.

1 7. The digital image processing device according to Claim 6,
2 wherein each of said shift registers is made up of two or more
3 split shift registers and wherein each of said split shift
4 registers receives a data input, shift data input, latch signal
5 input, and shift signal input and produces a shift data output
6 and wherein each of said shift registers has a function of writing,
7 when data is to be written to said split shift registers, data
8 at one time, by making active a latch signal input, in
9 synchronization with a clock and, at time of shifting operations,
10 of performing said shifting operation for data, by making active
11 a shift signal input, in synchronization with a clock and of
12 feeding a shift output fed from each of said split shift registers
13 to said selector by connecting a terminal for a shift output from
14 each of said split shift registers to a terminal for a shift input
15 of each of adjacent split shift registers to allow said shift
16 register to perform said shift operation as a whole.

1 8. A digital image processing device comprising:
2 a signal processing means to process a video input signal;
3 a frame memory to store a result from the processing
4 performed by said signal processing means; and
5 a redundant pixel embedding means to embed a redundant pixel
6 not to be displayed in an image line read from said frame memory
7 and to produce a video output signal.

1 9. The digital image processing device according to Claim 8,
2 wherein said redundant pixel embedding means has a function of

3 receiving, as an input, an image line read from said frame memory
4 and of embedding, according to an embedding control signal fed
5 from outside, a redundant pixel in a specified position in said
6 image line.

1 10. A digital image processing device comprising:

2 a signal processing means to process a video input signal;

3 a frame memory to store a result from the processing
4 performed by said signal processing means;

5 a serial-parallel converting means to receive image data
6 read from said frame memory in a time-series manner and to produce
7 an output making up an image line,

8 a redundant pixel embedding means to embed a redundant pixel
9 not to be displayed in said image line and to output data, and

10 a parallel-serial converting means to output said image
11 line in which said redundant pixel is embedded as time-series
12 image data.

1 11. The digital image processing device according to Claim 10,
2 wherein said serial-parallel converting means which is made up
3 of a register file being able to store an image line and which
4 has a function of sequentially storing image data fed from said
5 frame memory in a time-series manner according to a writing
6 control signal fed from outside and of reading, simultaneously
7 and in parallel, contents of all registers in said register file.

1 12. The digital image processing device according to Claim 10,
2 wherein said redundant pixel embedding means has a function of
3 receiving, as an input, an image line read from said serial-

4 parallel converting means and of embedding, according to an
5 embedding control signal fed from outside, a redundant pixel in
6 a specified position in said image line.

1 13. The digital image processing device according to Claim 10,
2 wherein said parallel-serial converting means has a register file
3 made up of two or more shift registers and a selector to select
4 an output from each of said shift registers and to output the
5 selected output and wherein said register file is able to store
6 an image line in one clock cycle and wherein each of said shift
7 registers is able to perform a shifting operation, according to
8 a reading control signal fed from outside, in synchronization with
9 a clock signal and wherein said selector has a function of
10 selecting a specified shift output from said shift register and
11 of outputting the selected output according to an embedding
12 control signal fed from outside.

1 14. The digital image processing device according to Claim 13,
2 wherein each of said shift registers is made up of two or more
3 split shift registers and wherein each of said split shift
4 registers receives a data input, shift data input, latch signal
5 input, and shift signal input and produces a shift data output
6 and wherein each of said shift registers has a function of writing,
7 when data is to be written to said split shift registers, data
8 at one time, by making active a latch signal input, in
9 synchronization with a clock and, at time of shifting operations,
10 of performing said shifting operation for data, by making active
11 a shift signal input, in synchronization with a clock and of
12 feeding a shift output fed from each of said split shift registers

13 to said selector by connecting a terminal for a shift output from
14 each of said split shift registers to a terminal for a shift input
15 of each of adjacent split shift registers to allow said shift
16 register to perform said shift operation as a whole.